

Memo February 16, 2005

To: Commissioners, staff
From: Mike, Gary
Re: N2003.10.154: Report on Qwest Service Quality

Introduction and Background

The staff has on prior occasions routed memos that report on the quality of service that Qwest (f/k/a U S West) provides in Montana. This memo continues with that past reporting and stems from the Montana Commission's (MPSC's) express approval in N2003.10.154 to continue monitoring Qwest's service quality.¹ NARUC also encourages such work.² The staff's 1999 report focused on the difference in trouble report complaints for Qwest's residential and business customers for the period 1992 to 1997. The 2000 report was expanded to include two more years (through 1999) of data and to document the types and causes of trouble report complaints.

This memo builds on the 2000 report to include four more years of data and includes an analysis of that data. In summary, the data reveals that while Qwest has reduced its trouble report complaints (filed with the FCC) residential customers continue to register a significantly greater percentage of trouble report complaints than business customers register. The service quality that Qwest provides residential customers is predictably less reliable than the service quality that it provides to its business customers.

Beginning in March 1999, staff used discovery to collect data on *who* (the class of customers) experiences *what* types of trouble (e.g., outages) and *why* customers experience the kind of troubles they register (e.g., weather caused) with Qwest. This discovery effort was formalized in 2004 meetings with Qwest staff. The result is that the MPSC now receives monthly reports from Qwest, no discovery required. However, the MPSC no longer receives information on the *cause* of trouble report complaints.

In 2003 Qwest's existing Montana customers subscribed to about 345,294 access lines, compared to the roughly 320,000 lines at the time (1992) of Qwest's last revenue requirements

¹ The most recent report is a June 28, 2000 staff Memo in D99.3.79.

² At the annual 1998 convention NARUC passed a resolution that, in part, urges state Commissions to promote high quality telecommunications services.

rate case, but down from its peak level of subscriptions in year 1999. Also in 2003, Qwest's Montana residential and business customers registered 31,611 initial trouble report complaints with the Company, roughly one initial complaint for every 10 access lines. We also include data on Qwest's repeat trouble report complaints. Although we report repeat trouble by class, the overall rate for year 2003 was 17.4% -- meaning that within 30 days of when initial complaints are resolved 17.4% of those customers then lodged a subsequent complaint for the same access line. For the year 2003, the repeat troubles amounted to 5,500 complaints.

Issues raised by the continued disparity in service reliability for residential and business customers include the associated economic cost impacts and pricing implications. When, for example, due to an outage, a customer's access to the primary basic exchange service -- the gateway -- is blocked both explicit (primary and secondary) and implicit costs arise. A policy discussion concludes this report.

Consequences of Diminished Service Quality

There are at least as many measures of service quality as there are products and services offered by a local exchange carrier (LEC). However, the quality of some services is arguably more important than for others. Basic exchange service provides the gateway for customers to subscribe to and use other services. When basic exchange service is unavailable a company cannot supply the additional services that customers have paid for and that they expect to use.³ With basic exchange service, customers also subscribe to additional services such as broadband (e.g., via the internet and DSL services), toll (long distance), vertical (e.g., call waiting, last call redial) and VoIP (voice over internet protocol) services. In addition, they have emergency service (e.g., 911) access. But, when basic exchange service access is blocked, when the loop is inoperable, customers are denied use of these other additional services. Blocked access to basic exchange service gives rise to other costs due to network effects.

The main service quality metric reviewed in this memo is trouble report complaints that Qwest receives from its business and residence basic exchange customers in Montana, and that it, in turn, reports to the FCC. The trend in trouble report complaint data continues to reveal a significant difference in the service quality that Qwest provides to its business and residential

³ Although dated somewhat, Qwest once estimated that its average revenue exceeds \$40/month for residences and \$75/month for businesses.

customers. On a percentage basis, residential customers register significantly more trouble report complaints than do business customers. An update on the trend in trouble report complaints for the residential and business customer classes follows a brief description of the Montana basic exchange market.

Qwest's Montana Local Exchange Market and Service Quality Data

Montana's largest local exchange company (LEC) is Qwest. Qwest served at year's end 2002 about 364 thousand of Montana's 542 thousand access lines.⁴ A majority of the retail access lines that Qwest serves are basic residential exchange service lines. About 78 % of Qwest's residential and business lines terminated inside base rate areas.⁵ Table 1 details the change in access lines for the years 1992 to 1999.

Table 1: Retail Access Lines⁶

<u>Year</u>	<u>Residential</u>	<u>Business</u>	<u>Total (select years)</u>
2003	242,601	102,693	345,294
2002	254,046	110,238	
2001	261,658	114,173	
2000	267,228	115,217	
1999	267,298	115,225	382,523
1998	259,879	107,713	
1997	253,811	101,325	
1996	247,000	92,000	
1995	232,000	83,000	
1994	252,000	91,000	
1993	243,000	88,000	
1992	235,000	85,000	320,000

⁴ The FCC's May 2004 Trends in Telephone Service report (Table 7.2).

⁵ Qwest has estimated that the residential and business share of loops terminating in the base rate area to equal 72.4 percent and 80 percent, respectively (Brigham Direct Testimony, February 2, 2000, D96.11.200, Exh. No. RHB-1).

⁶ Access lines include individual lines and access for party lines, PBXs, Centrex, Foreign Exchange and WATs, a definition that differs from billable access lines. Data for years 2000 through 2003 were added to data contained in staff's prior June 28, 2000 report; the FCC cautions that its ARMIS service quality data may contain methodological shortcomings and inconsistencies. For example, revised data may introduce an inconsistency with data of both prior and subsequent years.

The FCC's ARMIS (Automated Reporting Management Information System) reports contain publicly available data on the trouble report complaints that customers register with Qwest.⁷ ARMIS reports include data on the number of access lines, initial and repeat trouble reports, and instances when no trouble is found.⁸ ARMIS reports also contain separate data for metropolitan and non-metropolitan statistical areas (MSA and non-MSA) for both the residential and business classes. As the FCC requires Qwest to report initial trouble report complaints and the occasions when no trouble is found we label the net of these two values “verified” trouble report complaints. Table 2 reports the number of verified initial trouble report complaints, by class, for years 1992 to 2003.

Table 2: Verified Trouble Report Complaints⁹

<u>Year</u>	<u>Residential</u>	<u>Business</u>
2003	20,024	3,584
2002	18,874	3,833
2001	20,653	3,894
2000	28,980	5,639
1999	34,821	7,398
1998	34,439	7,198
1997	33,795	7,222
1996	32,630	6,967
1995	27,286	6,065
1994	24,702	5,751
1993	36,597	8,975
1992	35,627	9,581

It is of interest to compare by class Qwest’s actual service quality based on the trouble report complaints that are in ARMIS reports. In 2003, Qwest’s residential customers filed 20,024 verified trouble report complaints while business customers filed 3,584 verified trouble report complaints. Stated differently, in 2003 residential customers filed 8.3 verified trouble

⁷ FCC data on trouble report complaints for Qwest is available at the FCC’s electronic ARMIS filing system at: <http://www.fcc.gov/wcb/eafs>

⁸ For either customer class, initial trouble reports are the sum of out-of-service trouble reports and all other initial trouble reports (e.g., static, interrupted calls). Out-of-service means a customer is totally without service. We exclude, for now, repeat trouble report complaints.

⁹ See footnote to Table No. 1 for background on the use of ARMIS data. The data in Table 2 includes a recent estimate of verified trouble reports (2000 to 2003) and the same 1992 to 1999 data included in the prior June 28, 2000 staff report.

report complaints per hundred lines and business customers filed 3.4 trouble report complaints per 100 lines. From 1999 up until 2003 complaints lodged by business customers declined. Residential complaints declined from 1999 to 2002 but have begun to rise again in 2003. Whereas the MPSC's existing service quality rules (A.R.M. 38.5.3371(7)) employ a monthly trouble report standard of not more than 6 per 100 local access lines per exchange (excluding interexchange and customer premise type complaints) the data in Table 3 are annual. If one looks at 2003, the average monthly ratio of verified residence trouble reports per 100 lines was 0.7 and for business was 0.3. Both of these are well under the service objective for trouble reports of 6 per 100 lines per month. However, it should be pointed out the actual 2003 residence and business ratios are for Qwest's entire Montana service area. We do not have exchange data but there could be some exchanges where the service objective was exceeded.

Based upon the Annual Report, 2003 prepared for the MPSC by the PSC's complaints bureau, about 595 complaints were filed with the MPSC that regard Qwest local and toll services. Of these roughly 595 complaints, about 75 complaints in 2003 regard service quality and repairs or outages. In contrast, customers registered with Qwest about 26,000 verified troubles and an additional roughly 5,500 repeat troubles, all in 2003.

From the data in Table 2, several additional observations are of interest. First, the number of verified trouble reports declines from 1992 to 1999. This decline stems, in part, from Qwest's sale of exchanges in the mid-1990s. Second, from 1994 to 1999 there is an upward trend in verified trouble reports for each class. Third, since the Commission's first (D99.3.79) service quality investigation concluded, Qwest's verified trouble report complaints for the residential class have declined, at least up and until 2003. What is not readily apparent from the trouble report complaints in Table 2 is the relation between the trends in verified trouble report complaints for the two classes. The data in Table 3 reports the percentage difference in trouble report complaints for the residential and business customer classes.

Table 3: Trouble Report Percentages (and Ratio)

<u>Year</u>	<u>Residential</u>	<u>Business</u>	<u>Ratio</u>
2003	8.3	3.4	2.44
2002	7.4	3.4	2.21
2001	7.9	3.3	2.40
2000	10.8	4.7	2.30
1999	13.0	6.4	2.03
1998	13.3	6.7	1.98
1997	13.3	7.1	1.87
1996	13.2	7.6	1.75
1995	11.8	7.3	1.61
1994	9.8	6.3	1.55
1993	15.1	10.2	1.48
1992	15.2	11.3	1.35

Based on the data in Table 3, in 1992, Qwest's residential customers registered about 15.2 complaints per 100 access lines. In the same year, business customers registered about 11.3 complaints of trouble per 100 access lines. Based on these 1992 percentages, the residential class registered 35 % more complaints than did the business class. From 1992 to 2003 there is a steady divergence in the percentage of trouble report complaints for these two classes. In 2003, residential customers registered about 144% more complaints than did business customers.

Repeat Trouble Report Complaints

The FCC ARMIS' reports also contain repeat trouble report complaint data. ARMIS defines repeat trouble reports as "customer trouble reports concerning service quality that are received within thirty days after the resolution of an initial trouble report on the same line." As the repeat trouble report complaints are defined in terms of the "same line" it is not possible to discern whether the same trouble was repeated or whether a new kind of trouble has occurred. Thus, repeat complaints do not indicate the quality of the repair work done by Qwest after it received initial trouble reports. Table 4 below summarizes repeat trouble reports for residence and business as a percentage of initial trouble reports. On examination, Table 4 reveals only slight differences in the percentage of repeat trouble reports for business and residences.

Table 4: Repeat Trouble Reports (percentage)¹⁰

<u>Year</u>	<u>Residence</u>	<u>Business</u>
2003	17.2%	18.3%
2002	20.0%	19.3%
2001	21.1%	21.3%
2000	24.9%	26.2%
1999	26.0%	28.4%
1998	27.3%	28.7%
1997	23.6%	26.6%
1996	23.4%	26.8%
1995	22.1%	23.9%
1994	23.5%	20.4%

Types of Network Trouble Report Complaints: A Class Comparison

The above analysis of customer trouble report complaints reveals a divergence in the quality of basic exchange service that Qwest provides to residences and businesses.¹¹ With the question of *who* registers complaints addressed, it remains to detail *what* types of trouble report complaints are registered. Customer trouble reports for Qwest's Montana network operations are described in the following.

Qwest reports aggregate data from trouble reports that it includes in a monthly report it files with the MPSC. Aggregate data for the most recent six months (June to November 2004) are used to document the type of trouble reports. The types of network complaints that Qwest's customers register are reviewed first. During the recent six month period, Qwest had 33,723 trouble reports that are network related. On 20,377 occasions (60 % of 33,723 network trouble reports) customers complain that they have no dial tone or cannot dial out. On another 2,380 occasions (7 %) customers complain that they cannot be called. These three types of complaints, that result in blocked calls, account for about two-thirds (67 %) of the total network complaints. Also, there are 5,589 complaints (17 %) of diminished transmission quality. While not identical to an outage, diminished transmission quality may also have the effect of call blockage. Another

¹⁰ ARMIS Report 43-05. Repeat trouble is a percentage of initial trouble report complaints.

¹¹ There are numerous types of trouble report complaints. One distinction is between complaints that relate to Qwest's network and those that are "CPE" related. For example, from March 1999 to February 2000, Qwest received 17,597 complaints from its Montana business customers. These complaints differ from the 8,531 complaints that Qwest labels "CPE," and that arise from problems on the business customer's side of the network interface. The 8,531 complaints are not likely related to U S West's network.

3% relate to "memory service" problems (e.g., voice messaging and class services). The balance of the complaints (13 %) falls into one of three other categories.

In the following, we disaggregate and compare the type of trouble report complaints that residential and business customers have registered. Because three types of trouble report complaints (no dial tone, cannot dial out, cannot be called) effectively render the customer out of service, we will combine these three types of complaints. When combined the percentages (Table 5 below) for each class are similar: 67.8 % of the residential and 65.2 % business trouble report complaints involve no dial tone, cannot dial out and cannot be called complaints. The residential class also experiences a higher frequency of diminished service quality (16.9 % residential versus 14.6 % business). These first four types of complaints account for about 85% of residence complaints and 80% of business complaints. Business customers register a higher percentage of memory and data service complaints than do residential customers.¹² In the case of memory service complaints the differences are 5.6 % for business and 2.0 % for residences. Businesses also register a higher percentage of data failure type complaints (.4 %) than do residences (.1 percent). However, over 99 % of the complaints that either class registers do not relate to "data failure." If business customers are early adopters of new services, it may follow that they would experience these (memory and data) problems at greater rates than do residential customers. Table 5 summarizes the type of trouble report complaints.

Table 5: Types of Trouble Report Complaints (June to November 2004)

<u>Category</u>	<u>Residence</u>		<u>Business</u>	
	<u>Quantity</u>	<u>Percent</u>	<u>Quantity</u>	<u>Percent</u>
Total Non-CPE	28,734	NA	4,989	NA
No Dial Tone	16,737	58.2%	2,510	50.3%
Cannot Dial Out	835	2.9%	295	5.9%
Cannot Be Called	1,930	6.7%	450	9.0%
Diminished Quality	4,862	16.9%	727	14.6%
Memory Services	567	2.0%	279	5.6%
Data Failures	37	0.1%	21	0.4%
Miscellaneous	3,766	13.1%	707	14.2%

¹² From a prior case we know that memory service type complaints may include any of the following: call waiting, call forwarding, remote access, caller ID and continuous redial services, so-called custom local area signaling services. Data failure simply refers to data lines that fail.

The data in Table 5 reveal that a similar percent, a majority, of either class' trouble report complaints derive from the same general type of problem -- blocked use of phone service due to no dial tone, cannot dial out and cannot be called complaints. There is, however, no apparent explanation for the large percentage difference in trouble report complaints (Table 3) that can be derived from reviewing the types of complaints.

Duration of Outages

Given that over 60 % of Qwest's network trouble complaints associate with three types of complaints (no dial tone, cannot dial, cannot be called), the duration of outages is also of interest. Based upon six months of data in 2004, Qwest has classified "out of service" occurrences for three different outage durations. First, on 21,404 occasions, service outages lasted less than 24 hours. Second, on 2,094 occasions service outages were between 24 and 48 hours in duration. Third, on 702 occasions service outages exceeded 48 hours in duration. This data shows significant improvement in the duration of outages from the staff's last June 28, 2000 report. Unfortunately, more discrete data is not available from the reports on the duration of outages. Using the mid-points for the two shorter categories of outages and a conservative 48 hour duration for the longest category the weighted average duration of outages is about 15 hours in duration. The percentage of residential trouble reports that are carried over and not resolved until 24 hours or later exceeds that for the business class slightly (11.8 percent versus 9.8 percent respectively).

Discussion

This Memo updates the staff's last June 28, 2000 report to include trouble report data for years 2000-2003. Two major trends in this Montana data stand out. First, the number of verified initial trouble report complaints has declined significantly since the date of the last report. There is, however, an increase in the residence trouble report complaints from 2002 to 2003. Second, the data in the last report showed a 100% higher verified initial trouble report percentage for residence customers than for business customers. In the last four years the ratio of the residential and the business percentages has significantly increased to 144%. To summarize, the number of verified initial trouble report complaints that Montana consumers register with Qwest is

declining but residence customers are reporting a significantly higher percentage of verified initial trouble report complaints than business customers report.

In addition to the verified initial trouble report complaints, we include for the first time data on repeat trouble reports. As a percent of initial trouble reports, Qwest's Montana customers lodged 5,500 repeat trouble report complaints, in addition to the 23,600 verified initial trouble report complaints. In 2003 there resulted a total of about 29,100 verified initial and repeat trouble report complaints that were filed by Qwest's Montana consumers.

We recommend continuing this effort at reporting on Qwest's trouble report complaints. There are refinements to this report that could be addressed in the next report, but only with Qwest's cooperation. For example, whereas the June 28, 2000 report contained information on the cause of trouble report complaints that information is no longer filed. It would be beneficial also to update the revenue per line data from the 1999 staff report. The duration of outages should be disaggregated by class and would ideally be reported on a more discrete basis. We urge continuing this reporting on Qwest's service quality in part because of the obvious reduction in monies allocated to construction in Montana. Staff's February 7, 2005 Memo (on HB 539) reports a decline from roughly \$64 million to \$24 million over the time period 2000 to 2003.

As for the policy implications, there is nothing new to add that was not in the June 28, 2000 report. As noted in the 2000 report there are implications for retail and wholesale pricing. There are implicit costs in addition to the explicit costs associated with services paid for that cannot be used. It would be interesting to have estimates of both the explicit and implicit costs that arise due to, for example, the blockage of service. That objective is beyond our resources. There also is the implication that the widening disparity in service quality has on cross subsidies alleged to flow between retail service products (residential versus business basic exchange services). And in the wholesale market there is the incentive that competitive LECs have to enter one or the other local exchange markets (business versus residence) based upon price and quality differences.